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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,153	01/25/2002	Robert J. Barnett	01-49	9535
7590 04/28/2004				
Andrew Alexander Andrew Alexander & Associates 3124 Kipp Avenue P.O. Box 2038 Lower Burrell, PA 15068		EXAMINER WILKINS III, HARRY D		
		ART UNIT PAPER NUMBER		
		1742		
DATE MAILED: 04/28/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/055,153	<b>Applicant(s)</b> BARNETT ET AL.	
	<b>Examiner</b> Harry D Wilkins, III	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 is/are allowed.
- 6) ☒ Claim(s) 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

1. The rejections under 35 USC 103 based on Beck et al in view of Gianfranco et al of claims 1-14 have been withdrawn in view of Applicant's amendment of claim 1 and remarks.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 5,284,562) in view of Gianfranco (US 4,770,752).

Beck et al teach the invention substantially as claimed. Beck et al teach (see abstract, figure 6, col. 1, lines 17-60 and col. 11, line 12 to col. 12, line 26) a process for the production of aluminum from alumina dissolved in a molten salt electrolyte contained in a cell free of frozen crust comprising (a) providing a molten salt electrolyte (containing one or more alkali metal fluorides) at 660-800°C, (b) providing a plurality of anodes and cathodes disposed in the electrolyte which contains dissolved alumina, (c) passing an electrical current from the anodes, through the electrolyte and into the cathodes, which deposits aluminum on the cathode, (d) venting volatile material (to the atmosphere) and (e) adding alumina to the cell substantially continuously.

Beck et al do not teach contacting the alumina with the fluoride containing volatile material, capturing volatile material on the alumina and returning the fluorides containing volatile material to the electrolyte with the alumina.

Gianfranco teaches (see abstract, figure 3 and col. 7, lines 29-54) a method whereby the volatile materials from an aluminum smelter are passed through a conduit (21, 22, 27) and are adsorbed onto alumina that is then fed into the molten electrolyte, thereby recycling the volatile material (HF) back into the melt.

Therefore, it would have been obvious to one of ordinary skill in the art to have added the volatile material recycling means of Gianfranco in the process of Beck et al, thereby venting the volatile material and absorbing it onto the alumina feed, because the contacting means of Gianfranco provide for recycling of the volatile HF gases, thus reducing losses in the process.

Regarding the fact that Gianfrano teaches a non-continuous feeding where the electrolyte has a frozen crust, it has been held that making a batch process continuous is within the ability of one of ordinary skill in the art (see MPEP 2144.04.V.E.), thus, it would have been within the expected skill of a routineer in the art to have adapted the apparatus of Gianfranco to operate to continuously feed alumina to the non-frozen crust apparatus of Beck et al.

Regarding claim 16, Beck et al teach (see col. 1, lines 54-56) maintaining the bath at 660-800°C.

Regarding claim 17, Beck et al teach (see paragraph spanning cols. 8 and 9) that the current density was 0.5 A/cm<sup>2</sup>.

Regarding claim 18, Beck et al teach (see abstract) that the anodes were made from a Ni-Cu-Fe alloy.

Regarding claim 19, Beck et al teach (see col. 4, lines 17-21) that the cathodes were made from TiB<sub>2</sub>.

Regarding claim 20, Beck et al teach (see figure 6) arranging the anodes and cathodes vertically in alternating relationship.

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### ***Response to Arguments***

4. Applicant's arguments filed 11 February 2004 have been fully considered but they are not persuasive. Applicant argued that:

- a. Since Gianfranco is related to a process involving a frozen crust, which does not allow it to operate in a continuous manner, wherein the alumina is fed at certain intervals through use of a crust breaker.

In response, as discussed above, it has been held that adapting a batch process to operate continuously is within the ability of one of ordinary skill in the art. In addition, when combined with the apparatus of Beck et al, which operates without a frozen crust, one of ordinary skill in the art would have found it obvious to omit any extraneous equipment required to feed the alumina through the frozen crust, such as the point crust breaker.

- b. Gianfranco includes a reactor (such as a fluidized bed) to react the gases with the alumina, whereas the present invention does not require a reactor.

In response, while it is true that Gianfranco includes a reactor for the capturing of volatile material on the alumina, such a reactor is not prohibited by the present claim language.

- c. Gianfranco includes a tank for collecting the reacted alumina, whereas the present invention does not require such a collecting tank.

In response, while it is true that Gianfranco includes a collecting tank for the alumina, such a collecting tank is not prohibited by the present claim language.

- d. The present invention requires introducing the alumina through the same conduit used for venting the volatile material.

In response, while this limitation may be present in claim 1, it is not present in claim 15.

- e. Gianfranco is silent and does not disclose introducing alumina and capturing volatile material on the alumina as it is introduced to the cell.

In response, when the method of Gianfranco is adapted to operate in a continuous manner with the method of Beck et al, the capturing step would occur as the alumina is introduced into the cell.

***Allowable Subject Matter***

- 5. Claims 1-14 are allowed.
- 6. The following is a statement of reasons for the indication of allowable subject matter: the closest prior art is the combination of Beck et al with Gianfranco. However, as pointed out by Applicant on page 11 of the response filed on 11 February 2004, Gianfranco does not teach feeding the alumina, which has absorbed the volatile

Art Unit: 1742

material, back to the electrolysis reactor through the same conduit. In fact, Gianfranco teaches directly away from the present invention by including a separate feeding conduit for the alumina. Regarding the fact that Gianfranco teaches a non-continuous process, it has been held that making a batch process continuous is within the ability of one of ordinary skill in the art (see MPEP 2144.04.V.E.), however, even when adapting the apparatus of Gianfranco to operate continuously, one of ordinary skill in the art

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would not have had motivation to feed the alumina through the same conduit as is used to vent the volatile material. Therefore, independent claim 1 is allowable over the prior art.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry D Wilkins, III  
Examiner  
Art Unit 1742

hdw

  
**ROY KING**  
**SUPERVISORY PATENT EXAMINER**  
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